

What is claimed is:

1. A method of operating a phosphoric acid fuel cell comprising an anode electrode, a cathode electrode, and an electrolyte layer interposed between said anode electrode  
5 and said cathode electrode, said electrolyte layer including a matrix composed of basic polymer impregnated with acidic liquid electrolyte, comprising the steps of:

supplying hydrogen-containing gas to said anode  
10 electrode;

supplying oxygen-containing gas to said cathode  
electrode; and

operating said phosphoric acid fuel cell in a state in  
which a pressure on said cathode electrode is higher than a  
15 pressure on said anode electrode.

2. The method of operating said phosphoric acid fuel  
cell according to claim 1, wherein a ratio between an  
absolute pressure on said cathode electrode and an absolute  
20 pressure on said anode electrode is not more than 2.

3. The method of operating said phosphoric acid fuel  
cell according to claim 1, wherein any one of phosphoric  
acid, sulfuric acid, and methysulfonic acid is used as said  
25 liquid electrolyte.

4. The method of operating said phosphoric acid fuel

cell according to claim 3, wherein a ratio between an absolute pressure on said cathode electrode and an absolute pressure on said anode electrode is not more than 2.

5           5.    The method of operating said phosphoric acid fuel cell according to claim 1, wherein a material, which has a structural unit of monomer of secondary amine, is used as said basic polymer.

10           6.    The method of operating said phosphoric acid fuel cell according to claim 5, wherein a ratio between an absolute pressure on said cathode electrode and an absolute pressure on said anode electrode is not more than 2.

15           7.    The method of operating said phosphoric acid fuel cell according to claim 5, wherein any one of phosphoric acid, sulfuric acid, and methylsulfonic acid is used as said liquid electrolyte.

20           8.    The method of operating said phosphoric acid fuel cell according to claim 5, wherein polybenzimidazole is used as said basic polymer having said structural unit of said monomer of said secondary amine.

25           9.    The method of operating said phosphoric acid fuel cell according to claim 8, wherein a ratio between an absolute pressure on said cathode electrode and an absolute

pressure on said anode electrode is not more than 2.

10. The method of operating said phosphoric acid fuel  
cell according to claim 8, wherein any one of phosphoric  
5 acid, sulfuric acid, and methylsulfonic acid is used as said  
liquid electrolyte.

11. The method of operating said phosphoric acid fuel  
cell according to claim 10, wherein a ratio between an  
10 absolute pressure on said cathode electrode and an absolute  
pressure on said anode electrode is not more than 2.